

FlightFinder: Navigating Your Air Travel Options

Team: DV, SM, SN, SS

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Faculty Mentor: Anji Babu

Industry Mentor: No Mentor has been assigned

Overall Project Progress: 74%

Project Introduction

The FlightFinder application is a comprehensive digital platform built to enhance the airline ticket booking experience. Designed with modern users in mind, this project leverages full-stack web development technologies to create an interactive, reliable, and secure application. Whether you're a frequent flyer or an occasional traveler, this application streamlines every step from flight search to ticket confirmation.

Key features include an intuitive user interface, advanced filtering, personalized bookings, robust payment systems, and secure authentication for both users and admins.

Landing Page UI

Scenario Use Case

John, a frequent business traveler, needs to book a flight to Paris for a conference. He uses FlightFinder to: - Enter travel details (New York → Paris, April 10–15, Business class) - View direct flights and apply filters - Select his preferred airline - Pick a window seat with extra legroom - Make secure payment - Receive an instant e-ticket and confirmation

This scenario demonstrates how the application simplifies complex travel planning into a seamless process.

User Booking Flow

Technical Architecture

The FlightFinder system consists of three main components:

- **Frontend:** Built using React.js to deliver a responsive and user-friendly experience. Handles search, booking, login, and dashboards.
- **Backend:** Implemented using Node.js and Express.js. Manages API requests, authentication, and business logic.
- **Database:** MongoDB is used to store user profiles, flight data, and booking history.

An ER diagram outlines key relationships among users, bookings, payments, and flights.

Pre-Requisites for Development

- Install **Node.js** and **npm** from nodejs.org
 - Set up **MongoDB** locally or via Atlas ([Download Link](#))
 - Use **Express.js** (`npm install express`) for backend API development
 - Install **React.js** using `npx create-react-app`
 - Familiarity with HTML, CSS, JavaScript
 - Use **Axios** for frontend API requests
 - Use **Mongoose** for MongoDB interaction
 - Git for version control ([Git Download](#))
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Project Setup & Configuration

1. Clone the GitHub repository:
`git clone https://github.com/harsha-varadhan-reddy-07/Flight-Booking-App-MERN`
 2. Navigate into client and server folders.
 3. Install dependencies:
 4. Frontend: React, Axios, Bootstrap
 5. Backend: Express, Mongoose, bcrypt, cors, body-parser
 6. Run the app:
 7. Backend: `npm run dev`
 8. Frontend: `npm start`
 9. Access the app at `http://localhost:3000`
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Backend Development Workflow

- Set up MongoDB collections for users, bookings, flights.
- Configure Express server and middleware.
- Implement secure login/logout, token-based authentication.
- Define REST APIs for flight search, booking, and admin access.
- Apply error handling for validation and server issues.

Backend Code Overview

Frontend Development Features

- Create user and admin login pages.
- Develop flight search with filters (source, destination, date, class).
- Allow users to book flights, view/cancel their bookings.
- Admin dashboard to:
 - Add new flights

- View all bookings
- Monitor users

Admin Dashboard

Application Flow

User Actions: - Register/Login - Search available flights - Book with seat selection - Make secure payment - Cancel or review past bookings

Admin Features: - Authenticate with admin credentials - Add/edit/delete flight listings - View all users and bookings

Application Flow

Project Flow Breakdown

- **Week 1:** Requirements gathering, tech stack finalization
 - **Week 2:** Frontend and backend folder setup
 - **Week 3–4:** Backend API development and MongoDB integration
 - **Week 5–6:** Frontend components, API integration
 - **Week 7:** Testing and bug fixes
 - **Week 8:** Final demo recording and documentation
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Demonstration & Video References

- Backend Code Walkthrough: [Watch Video](#)
 - Frontend Features Demo: [Watch Video](#)
 - Final Application Demo: [Try the App](#)
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Conclusion

This internship project successfully demonstrates the development and deployment of a full-stack MERN application that modernizes flight booking. It brings together technical skills in React, Node, MongoDB, and Express while also improving design thinking, security awareness, and user experience planning.

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